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Accelerator-Produced sub-GeV Dark Matter Search Using MiniBooNE REMINGTON THORNTON, Indiana University, MINIBOONE COLLABORATION — Cosmological observations indicate that our universe contains dark matter (DM), yet we have no measurements of its microscopic properties. Whereas the gravitational interaction of DM is well understood, its interaction with the Standard Model is not. Direct detection experiments, the current standard, search for a nuclear recoil interaction and have a low-mass sensitivity edge of order 1 GeV. To detect DM with mass below 1 GeV, either the sensitivity of the experiments needs to be improved or use of accelerators producing boosted low-mass DM are needed. Using neutrino detectors to search for low-mass DM is logical due to the similarity of the DM and ν signatures in the detector. The MiniBooNE experiment, located at Fermilab on the Booster Neutrino Beamline, has produced the world's largest collection of ν and $\bar{\nu}$ samples and is already well understood, making it desirable to search for accelerator-produced boosted low-mass DM. A search for DM produced by 8.9 GeV/c protons hitting a steel beam-dump has finished, collecting 1.86×10^{20} POT. Analysis techniques, predicted sensitivity, and preliminary results on the partial data set will be presented.

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